

Available online at www.sciencedirect.com**ScienceDirect**

Agriculture and Agricultural Science Procedia 8 (2016) 332 – 338

Agriculture and Agricultural Science

Procedia

Florence “Sustainability of Well-Being International Forum”. 2015: Food for Sustainability and not just food, FlorenceSWIF2015

Environmental and forest planning in Italy: conflicts and opportunities

Federico Guglielmo Maetzke^{a*}, Sebastiano Cullotta^a

^a *Dipartimento di Scienze Agrarie e Forestali, Università di Palermo, Viale delle Scienze, 11 Ed 4.- IngrH, Palermo 90128, Italy.*

Abstract

The necessity of a more sustainable use of lands and environmental resources in general, throughout specific programming and management tools at different scale levels is nowadays widely shared. Forests and woodlands are a key asset of the environment and the traditional and current landscapes. With regards to the state of art of forest planning and management tools in Italy, in this short paper, after a synthetic analysis of the tools currently adopted at different levels, some critical aspects of the relationships of forest planning instruments with other planning tools involved in environmental management (landscape plan, energy plans, basin plans) are investigated, enlightening contrasts and communication conflicts. Solving such problems could enhance the effectiveness of planning.

© 2016 The Authors. Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Peer-review under responsibility of Fondazione Simone Cesaretti

Keywords: Forest planning; sustainable forest management; planning conflicts; environmental planning.

1. Introduction

Forests and all the other natural and semi-natural resources are an undisputed key asset of a territory. Apart their productive economic value, they have a greater and all-around importance as expressed by their multiple ecological services and functions. These concepts have well been expressed and reiterated by the “EU Forest Action plan” (Commission European Communities 2006). The current structure, composition and status of forests in Europe is the result of centuries of history and needs of densely populated countries, that overexploited and shaped their woods. As a result managing forest resources is particularly complex and needs an holistic approach to forest

* Corresponding author. Tel.: +39.91.23861240; mob. +39 328 9866185.

E.mail address: federico.maetzke@unipa.it

planning.

Forest planning is the technical-political activity with the target of rationalizing the relationship between man and the forest (Bovio et al. 2004). It is the activity that organizes and rationalizes management on the basis of multi-functional criteria with multiple aims. From the EU community to local levels, passing through national and sub-national, the planning actions run from a list of main program points to a detailed indication of specific management practices. Up to recent times, the core of forest management, in the majority of EU countries (Cullotta et al., 2014), was the local level plan, often aimed to maximize wood production, with a shortcoming of planning at the intermediate between national/regional and local level.

2. Forest and environmental planning in Italy: a complex structure of tools

In Italy, up to the second half of the last century, the forest asset was under two level of rules: the national laws and the local management plan. The main forest law, acted in 1923 and essentially based on hydro geological protection, was still in force up to the regional decentralization process, decreed by the 1948 constitution, but put into effect in the 2nd half of '70. Up to these times the environmental matter was basically ruled by a few acts, and forest assets were only under the general addresses of national law and locally managed by general forest police rules or management plans. The governance was substantially hierarchical, based on a vertical approach. The decentralization attributed the environmental and forest matter of law to the regional authorities, revealing a shallow of midlevel planning, and contemporarily, the lack of a new national forest law, which was necessary to give a common framework for regional laws. In 1985, with the Landscape Act (Legge "Galasso" no. 431), the environmental matter and the forests were transferred to the jurisdiction of the short since instituted Ministry for the Environment. A new nature-oriented forest management was imposed; cutting was allowed as insofar as it was useful for the care of the forest ecosystem, with exception of plantations. In the same period the National Forest Plan (1986) was issued, even if this last remained both unclear with regards to the authority in charge and unfunded by the govern, and consequently ineffective (Corrado and Merlo, 1999). Gradually the Regional authorities adopted their own regional forest plans, and in 2005 the Ministry of Environment issued the guidelines for regional plans: the Decree Law "Guidelines of forest planning" which stressed the importance of midlevel plan and local management, even if the mid level (Territorial or Provincial) didn't formally (legally) existed, nor a suitable framework was issued.

With regard to the territorial matter, as infrastructures, socio-economic peculiarities, productive plant, urban development ecc., in the 1990 a Decree Law instituted, at the regional and the provincial level, the "Territorial Coordination Plan" (Piano di Coordinamento Territoriale), in order to address and coordinate the local rules (urban, infrastructural ecc.) and programming tools under a framework of locally strategic steering.

The need for graduated scale planning became relevant in order to match the forest matter with the other various environmental tools that were issued in those times. The cited Landscape Act of 1985 extended the "cultural value" state and legal restriction to the landscapes and forest, and consequently introduced a new approval regime for any territorial intervention that can cause modifications of the assets as whole. In the year 2004 the new Decree Law concerning the reorganization of the cultural and landscape matter introduced the Landscape Plan (Piano Paesaggistico) at the Regional and consequently (for further regional decentralization) Provincial level. These plans must design a framework of strategies for both urban and landscape management and intervention, as infrastructures etc.. The rules and prescription of the plan become prevalent on local planning tools.

To this general framework, some sectorial tools gradually added in recent times (Fig. 1). Protected areas have also their specific planning tools, as the Park Plans (L. 426/1998), in National and Regional parks, as far as the Nature 2000 sites plans. All these plans regulate all the human activities, with various level of restrictions, in the protected areas, including farming and forestry. It is noteworthy that a relevant part of protected areas is covered by woods, even if the approach of plans between forest and natural asset remains often separated (Corona et al., 2011). In 2006 (D.L. 152) the Basin Plan (Piano di Bacino) was instituted in order to coordinate and program the Hydrogeological protection at large basin level, through specific tools for local setup "Hydro-geological set up Plan" (Piani Stralcio di Assetto Idrogeologico). These last, in particular, can include forestation and landscaping operations to safeguard slopes and soils.

With regards to other planning tools, it is also remarkable that, at the national and at the regional level, the

Energy Plans are directly involved in the environmental management and particularly in the forest one. Following the growing interest of renewable sources of energy, particularly from biomasses production, the energy plans can address the management of forests, both private and public owned, strongly influencing these assets as resources from various points of view, as later will be discussed.

With regards to forestry, as above cited, currently the structure of planning at the upper level is based on the national law and the Framework Program for the Forest Sector (Programma Quadro per il Settore Forestale) declared in 2008. This document is aimed to foster the development of the forest sector following the EU Community addresses and commitment (Shannon, 2002). It pinpointed out 4 main objectives (economic value of the sector, safeguard of forest as biodiversity, ecological functionality..., safeguard of forest as a public interest asset, coordination among actors and acts) to reach within 10 years of validity. At Regional level the RFP (Regional Forest Plan) was set up by the D.L. 227/2001.

The RFP is a long-term programmatic document that takes into account an entire region, where an in-deep analysis of regional forests characters and needs is carried out in order to individuate management objectives, and to address the local policy. The plan is a fundamental tool to steer the regional Rural Development Programs and foster appropriate measures for funding forest activities with EU community financial support (EAFRD, ERDF...). Aside of the RFP, the L.353/2000 established the Regional Fire Fighting Program, a complex document that collects all the information about wild fire characters in the regional situation, analyzing statistics, fighting tools and intervention structure, in order to individuate fire-fighting objectives, eg. the reduction of the burnt area, and set up specific rules. Silviculture, as fire prevention tool, and local management orientation are also encompassed in this plan.

The Territorial level of planning (i.e sub-regional) (see Fig.1), Territorial Forest Plan (“Piano Forestale Territoriale” - IPLA 2004, Bovio et al. 2004), must be drafted for homogeneous forest landscape districts (concerning management aims and goals), into which the regional surface can be uniformly divided. The planning guidelines include the entire range of the forests’ multiple-functions as well as those of other forest resources and identify the management guidelines and most important threshold parameters in order to guarantee sustainable forest management (SFM) in line with the main international criteria (MCPFE, Forest Action Plan, etc.). The importance of territorial planning is that it would force the local administrators (e.g. municipalities) of a given forest area to create a platform of cohesion with respect to an asset – the forest – otherwise considered and managed in a fragmented way regardless of a univocal and indispensable territorial-level environmental strategy. The problem is that this level of planning in Italy, from the legislative and methodological standpoint does not yet have a clear, well defined regulatory framework on either the national or regional level. Nevertheless, some regions (Piemonte, Veneto, Lombardy and, with some case studies, also Sicily, Sardinia, Molise etc.) adopted these planning tools as reference for the forest management. An interesting feature of this kind of planning, following their regional prescription consulted (Piemonte, Veneto, Molise...) is the richness of information required and analyzed, that scans from geomorphological and pedological survey to forest surveys, passing through socio-economical aspects. This is a real mine of knowledge, that, in matter of fact, it is reductively used only for the forest sector planning.

The estate management level regards the direct, practical application of silvicultural and management techniques in specific forest stand, at local executive level (Fig.1). It is by far the most used tool to manage forest, and, under various denomination, is still the effective way to organize the application of silviculture in a given forest along the short period, generally 10 years. The local forest planning tools are based on detailed and systematically acquired data concerning structural, compositional and functional aspects of the forest cover, as far as socio-economical needs of the ownership and of the local community, that are fundamental information in order to draft specific prescription for forest management over the duration of the plan.

This short review of planning tools reveals the complexity of the structure adopted in Italy (Fig. 1) to manage environmental assets. As shown, such framework was built in recent decades following the needs of a society increasingly aware of the importance of environmental heritage, and to EU community request too.

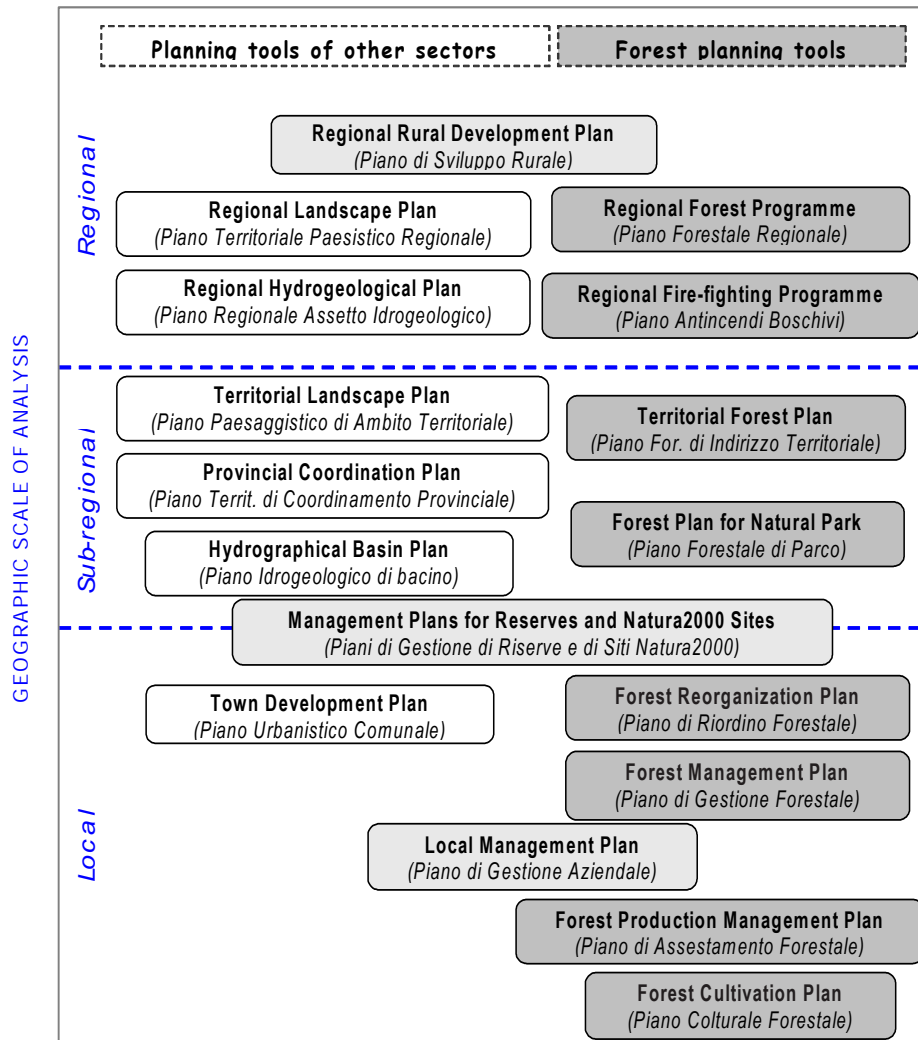


Fig. 1 - Hierarchy of forest planning tools in Italy and correlation with other planning instruments (after Cullotta and Maetzke, 2009).

3. Highlighting some conflicts and opportunities

The complex planning structure previously illustrated shows an increasing level of safeguard of the environment and forest assets, but, following the progressive layering of rules, it resulted in a difficult frame reference, that in some cases revealed inconsistent, or at least lacking of clear relationships and hierarchy among tools. The planning structure described should build a strong system of environmental governance, but it revealed some weak points.

With regards to the forest planning, there are some noticeable facts. At first, the introduction of the approval regime introduced by the 1985 Landscape Act entailed difficulties with regards to the authority in charge, among Forest Corp, Monuments and Culture Superintendence, other local Authorities. This inconsistency was resolved both by the 42/2004 Code declaring unnecessary the ministry approval for the normal cultivation activities, and by the regional Laws, given the decentralization, that attributed the matter only to local communities authority. With regards to the planning activities the main difficulties concern the lack of relationship among the various tools and sectors. The matter is that the various tools described are generally written and edited by team of sectorial specialist,

absolutely able to cope the specific items of a given scientific area (e.g. civil engineers and geologist for the basin plan, naturalists for parks plan, foresters for forests, etc....) often with an insufficient, or even without, a real cooperation with other competence, particularly foresters. The result is that a plan which is efficient for the specific area, often is likewise general for the forest matter, even if this last is involved in the object of planning. For instance the landscape plan - PITP - Territorial and Landscape Plan (2014) of Tuscany that is quite constraining on the mining aspect and very general on forest aspects. Inter-sectoral connections among planning tools are heterogeneous in Italy and are not easy to summarize. Some considerations can be made at the regional (or subnational non-administrative) level and at the municipal local level. An analysis conducted by Cullotta et al. (2014) reveals a widespread lack of hierarchical and heterarchical rules. For instance, according to specific laws, at the local level, the forest planning tools are subordinated to the protected area plans, while urban town plans are subordinated to forest plans. At the regional level, forest programs such as RFPs interact with related tools and Development Programs on agricultural and rural development in weak way. The goals and actual operations that are included in these regional plans should be in line with and support each other. Stronger connections seem to exist between the forestry and protected areas nature conservation sectors. These sectors have a mutual influence during the planning process: e.g. forest management operations are prohibited in protected areas or are only carried out in support of natural processes. In addition, current legislation on nature conservation institutionally influences forest planning, according to a multi-functional forest management paradigm.

Another serious debate must be raised with regards to the Energy plans, both at the national and regional level. Italy, adhering to the EU 2020 energy strategy has adopted the target of 20% of energy from renewable sources (RES) for the 2020 year: it entails the growth of strong interests toward biomasses production. The target, at now, is to increase the RES production of 17% of the current demand amount (<http://ec.europa.eu/europe2020>), and, despite of the inaccuracy and the scattering of the informative sources, it is estimate that about the 4% of this last must be from forest biomass, for an amount of 5Mtep equal to 30Mm³ round wood (Pettenella et al, 2011, Pettenella e Favero, 2014). Many Authors (Pettenella et al. 2011, ENAMA, 2011) underline that the wood production in Italy is underestimated by official sources as ISTAT (National Statistic Inst.), and moreover that the Italian forests are significantly underexploited. Following the growing interest to the forest biomass production, a reliable estimation of the really available woods resources become absolutely compulsory, with clear and a valid methodology, in order to support the sustainability of use of this source. Considering the vast variability of forest type in Italy, this is a critical point, because every type needs peculiar survey, moreover, each one forest type contribute in different way to ecosystem services, and these last are often by far more important aspects, both ecologically and economically speaking (Fontana et al., 2013).

Accurate and efficient planning is the key to achieve the target with respect of the forest asset. In order to obtain planning efficiency some base point must be taken into account:

- define sustainable methods of management, suitable for the various forest type,
- calculate the sustainable logging possibilities,
- define the current market amount of logged woods and the actual use of it,
- determine the amount of logged wood that is effectively available for energy without weighting on the real actual use and market of this resource.

After the national strategy (National Energy Plan), regional energy plan must program their executive strategy, and, in order to develop effective and sustainable use of forest resources, the planning activities both at regional and local scale must be based on reliable inventories (to accurately quantify the suitable and sustainable wood-mass to be harvest) and equilibrated choice of management practices. Here comes some possible conflicts. Energy plans at the regional level draw the possible scenery of energy production encompassing energy from wood logging, on local inventory base, but these last often doesn't give complete information on the local wood chain needs, nor on the sustainable logging possibilities. So that in some region there is a lack of relationships among: a) Regional Forest Plan - that individuates the sustainable management of forests asset, b) Regional Energy Plan that often don't take care of the specific characters of forest, c) local management plans that must organize the actual logging in the estate along the span of their time validity. It is noticeable in this matter, as an example, that in Sicily, which has a very poor forest assets and low coverage, the Regional Energy Plan foresee an amount of energy from forest biomasses that is clearly overestimated. In order to support this choice, the plan consider to realize 18000 ha of SRF (Short Rotation Forestry) in the territory, without taking into account the land suitability to effectively obtain adequate

increments of trees in a such harsh and dry environment: this even though the Forest Regional Plan supplied enough information and guidelines to drive this matter (Maetzke et al., 2008).

On the other side, such a growing interest on forest entails both a challenge and a opportunity. As first the possibility to revitalize a sector of local economy that traditionally is quite underdeveloped and in general reluctant to innovation, and secondly, it is an opportunity to foster planning and, above all, to achieve a effective integration between environmental planning sectors.

4. Conclusions

The environmental and forest planning framework in Italy is currently structured and multileveled, even if some gaps remains in the complex frame design ensued by subsequent laws and decrees. The Forest sector is no more only matter for foresters, nor the forests are an isolated, remote part of territories to be managed with own rules. There is a growing need to harmonize the forest planning tools with other parallel sector tools (Nature protection, Energy, hydrogeological, Urbanistic, etc.), adopting a holistic logic: it is compulsory to establish relationships and clear hierarchy and with towns and environmental plan at different levels, in order to truly achieve a Sustainable Environmental Management, as far as clear rules to follow. A gap in the planning and management come to light: the need of planning at territorial level, in the region which adopted such a tool, territorial planning is a strong tool to manage municipal/district scale level. Anyway, the significant amount and the completeness of information collected for drawing those plans could be better used for a wider aim, extending the plans towards the agricultural use of soil and landscape safeguard.

The Forest sector is no more only matter for foresters, nor the forests are an isolated, remote part of territories to be managed with own rules. There is a growing need to harmonize the forest planning tools with other parallel sector tools (Nature protection, Energy, hydrogeological, Urbanistic, etc.), adopting a holistic logic: it is compulsory to establish relationships and clear hierarchy and with towns and environmental plan at different levels, in order to truly achieve a Sustainable Environmental Management, as far as clear rules to follow.. Energy managers, foresters and politics must compare and share their information and establish a common approach in order to draw effective and sustainable use of woods as energy source: there is a real risk to fall in unsustainable scenarios from both the points of view of and overexploiting the forests and/or going towards an economical breakdown of investments in energy plant.

On the other side all the described difficulties can be seen as an opportunity to develop a better integration of tools that, driving to a effective and easy applicable planning, and this last, paraphrasing Aldo Leopold (1933) "is a good forest policy, a good forest economy".

References

- Bovio, G., Ceccato, R., Francesetti, A., Marzano, R., 2004. La Pianificazione Forestale Territoriale - stato dell'arte e prospettive di sviluppo. Progetto Riselvitalia, Sottoprogetto 4.2 - Sistemi informativi di supporto per la gestione forestale, Milano, pp. 2.
- Corrado, G., Merlo, M. 1999. The State of National Forest Programmes in Italy. In: Gluck, P., Oesten, G., Schanz, H., Volz, K.R., (Eds.) Formulation and Implementation of National Forest Programmes. European Forest Institute Seminar Proceedings 30, Vol. II 30, 157-173.
- Cullotta, S., Maetzke, F., 2009. Forest management planning at different geographic levels in Italy: hierarchy, current tools and ongoing development. *International Forestry Review* 11, 475-489.
- Cullotta, S., Bončina, A., Carvalho-Ribeiro, S. M., Chauvin, C., Farcy, C., Kurttila, M., Maetzke, F.G., 2014. Forest planning across Europe: the spatial scale, tools, and inter-sectoral integration in land-use planning. *Journal of Environmental Planning and Management* 58, 1384-1411.
- ENAMA (Various Authors), 2011. Progetto Biomasse, Parte 1 Biomasse ed Energia - Cap. 2 disponibilità delle Biomasse (www.enama.it)
- Favero M., Pettenella D., 2014, Italian import flows of woody biomasses for energy use: a sustainable supply? *New Medit* 2, 56-64.
- Fontana, V., Radtke, A., Bossi Fedrigotti, V., Tappeiner, U., Tasser, E., Zerbe, S., Buchholz, T., 2013. Comparing land-use alternatives: Using the ecosystem services concept to define a multi-criteria decision analysis. *Ecological Economics* 93, 128-136.
- IPLA, 2004. La pianificazione silvo-pastorale in Piemonte: Norme tecniche per i Piani Forestali Territoriali - Indirizzi metodologici per i Piani Forestali Aziendali. Torino, Regione Piemonte, Settore Politiche Forestali (CD-Room).
- Maetzke, F., Cullotta, S., La Mantia, T., La Mela Veca, D.S., Pizzurro, G.M., 2008. Individuazione di aree ecologicamente omogenee e di un sistema di aree a priorità di intervento per l'ampliamento della superficie forestale in Sicilia. *Forest@* 5, 280-295.
- MCPFE, 2003. State of Europe's forests 2003—the MCPFE report on sustainable forest management in Europe. In: Ministerial Conference on the Protection of Forests in Europe, Liaison Unit Vienna and UNECE/FAO, Vienna, pp. 44-46
- Shannon, M., 2002. Understanding collaboration deliberative communication, organizational form and emergent institution. In: Gislerud, O.,

Neven, I. (Eds.) National Forest Programmes in a European Context. EFI Proceedings, Joensuu 44, 7-26.

Pettenella, D., Brotto, L., Ciccacese, L., Giuliotti, V., Mori, P., Perugini, L., Romano, R. 2011. Gli accordi volontari per la compensazione della CO2. Indagine conoscitiva per il settore forestale in Italia. INEA, Quaderno 2, Osservatorio Foreste-Compagnia delle Foreste 2, 237-244.